



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/535,474

05/17/2005

Wolfgang Richter

63419(52171)

4298

21874

7590

02/23/2009

EDWARDS ANGELL PALMER & DODGE LLP

P.O. BOX 55874

BOSTON, MA 02205

EXAMINER

KOSACK, JOSEPH R

ART UNIT

PAPER NUMBER

1626

MAIL DATE

DELIVERY MODE

02/23/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.



### **DETAILED ACTION**

Claims 27 and 29-37 are pending in the instant application.

#### ***Amendments***

The amendment filed on November 28, 2008 has been acknowledged and has been entered into the application file.

#### ***Information Disclosure Statement***

The Information Disclosure Statement filed on November 28, 2008 has been acknowledged and has been entered into the application file.

#### ***Previous Claim Rejections - 35 USC § 112***

Claims 12-24 were previously rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement.

Applicant has cancelled the claims, and the rejection is withdrawn.

Claims 12-24 were previously rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement.

Applicant has cancelled the claims, and the rejection is withdrawn.

Claims 12-24 and 26-30 were previously rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for solvates in the solution phase, does not reasonably provide enablement for solvates in the isolatable or solid form.

Applicant has deleted the non-supported subject matter, and the rejection is withdrawn.

Claims 22, 23, 29, and 30 were previously rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for treating some cancers, does not reasonably provide enablement for treating all cancers.

The claims have been amended, and the rejection is withdrawn for claims 22, 23, and 29. The rejection is maintained for claim 30 because even though it is now a method for treating breast or epidermoid cancer, the patient population is much broader to include any cancer and is still not supported by the disclosure.

***Previous Claim Rejections - 35 USC § 103***

Claims 12-23 and 26-30 were previously rejected under 35 U.S.C. 103(a) as being obvious over Nicolaou et al. (*Angew. Chem. Int. Ed.* 1998, 2014-2045) in view of Patani et al. (*Chem. Rev.* 1996, 3147-3176).

Applicant has submitted declarations from Dr. Ludger Wessjohann and Dr. Wolfgang Richter, which have been found to be persuasive. The rejection is withdrawn.

***Previous Double Patenting Rejections***

Claims 12-23 and 26-30 provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 11 of copending Application No. 10/520,769, now published as USPN 20060004065 A1 in view of Patani et al. (*Chem. Rev.* 1996, 3147-3176).

Applicant has traversed the rejection on the grounds that Patani et al. is merely a background article and that the rejection should be held in abeyance.

This is not found to be persuasive because at a minimum, Patani et al. teach that SO and SO<sub>2</sub> are bioisosterically equivalent, and therefore obvious variants of each

Art Unit: 1626

other. Additionally, the rejection can not be held in abeyance because the '769 application was filed before the instant application. The rejection is maintained except for calims 12-23 and 26 which have been cancelled.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 30 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for treating people with breast and epidermoid cancer, does not reasonably provide enablement for treating breast and epidermoid cancer with people who have another form of cancer. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims.

In *In re Wands*, 8 USPQ2d 1400 (1988), factors to be considered in determining whether a disclosure meets the enablement requirement of 35 U.S.C. § 112, first paragraph, have been described. They are:

1. the nature of the invention,
2. the state of the prior art,
3. the predictability or lack thereof in the art,
4. the amount of direction or guidance present,
5. the presence or absence of working examples,
6. the breadth of the claims,
7. the quantity of experimentation needed, and
8. the level of the skill in the art.

.

*The Nature of the Invention*

The nature of the invention is the treatment of breast and epidermoid cancer with anyone who has any type of cancer.

*The State of the Prior Art and the Predictability or Lack Thereof in the Art*

The state of the prior art is that it involves screening *in vitro* and *in vivo* to determine which compounds exhibit the desired pharmacological activities (i.e. what compounds can treat which specific disease). There is no absolute predictability even in view of the seemingly high level of skill in the art. The existence of these obstacles establishes that the contemporary knowledge in the art would prevent one of ordinary skill in the art from accepting any therapeutic regimen on its face.

The instant claimed invention is highly unpredictable as discussed below:  
It is noted that the pharmaceutical art is unpredictable, requiring each embodiment to be individually assessed for physiological activity. In re Fisher, 427 F.2d 833, 166 USPQ 18 (CCPA 1970) indicates that the more unpredictable an area is, the more specific enablement is necessary in order to satisfy the statute.

Nicolaou et al. (*Angew. Chem. Int. Ed.* 1998, 2014-2045) teach that epithilones A-E along with structural analogs synthesized by the group are effective in inhibiting ovarian and breast cancer cell lines (Table 7, page 2041). Nicolaou et al. do not teach any testing or effectiveness of analogs of epithilones A or B with other types of cancer cell lines.

Flörsheimer et al. (*Expert Opin. Ther. Patents* 2001, 951-968) teach that it is too early to judge whether or not epothilone-based agents will one day be clinically useful

Art Unit: 1626

anti-cancer drugs (page 965, column 2, last paragraph). Flörsheimer et al. do teach though that naturally occurring epothilones are effective in inhibiting net growth of certain human cancer lines (page 952, Table 1).

Hence, in the absence of a showing of correlation between all cancers claimed as capable of treatment by the claimed compounds, one of skill in the art is unable to fully predict possible results from the administration of the compound of formula 1 due to the unpredictability of the role of those compounds in treating breast cancer and epidermoid cancer in a person with another type of cancer, and the unpredictability of the ability of the compound of formula 1 to cause toxicity or any improvement in condition.

*The Amount of Direction or Guidance Present and the Presence or Absence of Working*

*Examples*

The specification does not show any in vitro or in vivo data of the compounds. The specification directs the person of ordinary skill in the art to consult the two references cited in the previous section for guidance in the treatment of all cancers.

*The Breadth of the Claims*

The breadth of the claims is the treatment of all cancers (Claims 22-23).

*The Quantity of Experimentation Needed*

The quantity of experimentation needed is undue experimentation. One of skill in the art would need to determine which cancers can be treated with the compounds of

Art Unit: 1626

the instant invention, dosages, the method of drug delivery, and any potential combination therapies.

*The Level of Skill in the Art*

The level of skill in the art is high. However, due to the unpredictability in the pharmaceutical art, it is noted that each embodiment of the invention is required to be individually assessed for physiological activity by in vitro and in vivo screening to determine which compounds exhibit the desired pharmacological activity and which diseases would benefit from this activity.

Thus, the specification fails to provide sufficient support of the broad use of the compound of formula 1 for the treatment of breast and epidermoid cancer in a patient with another type of cancer. As a result, necessitating one of skill to perform an exhaustive search for which cancers can be treated by what compounds of formula 1 in order to practice the claimed invention.

Genentech Inc. v. Novo Nordisk A/S (CA FC) 42 USPQ2d 1001 , states that “a patent is not a hunting license. It is not a reward for search, but compensation for its successful conclusion” and “[p]atent protection is granted in return for an enabling disclosure of an invention, not for vague intimations of general ideas that may or may not be workable”.

Therefore, in view of the Wands factors and In re Fisher (CCPA 1970) discussed above, to practice the claimed invention herein, a person of skill in the art would have to engage in undue experimentation to test which diseases can be treated by the compound encompassed in the instant claims, with no assurance of success.

This rejection can be overcome deleting the claim.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

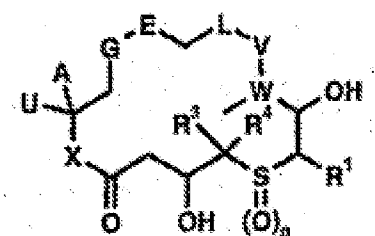
A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 27 and 29-37 provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 11 of copending Application No. 10/520,769, now published as USPN 20060004065 A1 in view of Patani et al. (*Chem. Rev.* 1996, 3147-3176).

Art Unit: 1626

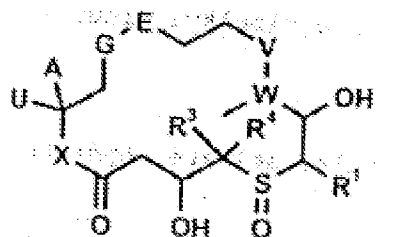
The instant application is drawn to compounds of the formula:



with substitutions as defined along with a method of

treating cancer with the compounds.

Determination of the scope and content of the prior art (MPEP §2141.01)



'769 teaches compounds of the formula

with

substitutions as defined.

Ascertainment of the difference between the prior art and the claims (MPEP §2141.02)

'769 does not teach a S or SO<sub>2</sub> in place of the SO group in the compound.

Finding of prima facie obviousness--rational and motivation (MPEP §2142-2413)

Patani et al. teach that carbonyl can be replaced by S, SO, or SO<sub>2</sub> if the position is not essential to the function of the molecule. See page 3167, Figure 67, Table 39, and the last paragraph of column 1.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention was made to follow the synthetic scheme of '769 with the replacement suggested by Patani et al. to make the claimed invention. The motivation

Art Unit: 1626

to do so is provided by '769. '769 teaches the use of the compounds to treat cancer.

See claim 11.

Thus, the claimed invention as a whole was *prima facie* obviousness over the combined teachings of the prior art.

This is a provisional obviousness-type double patenting rejection.

### **Conclusion**

Claims 27 and 29-37 are rejected.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph R. Kosack whose telephone number is (571)272-5575. The examiner can normally be reached on M-Th 6:30-5:00.

Art Unit: 1626

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph McKane can be reached on (571)-272-0699. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Joseph R Kosack/  
Examiner, Art Unit 1626

/REI-TSANG SHIAO /  
Primary Examiner, Art Unit 1626